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STMICROELECTRONICS, INC.  
MAIL STATION 2346  
1310 ELECTRONICS DRIVE  
CARROLLTON, TX 75006

EXAMINER

RODRIGUEZ, GLENDA P

ART UNIT	PAPER NUMBER
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2651

DATE MAILED: 03/12/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/993,876

Applicant(s)

OZDEMIR, HAKAN

Examiner

Glenda P. Rodriguez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-57 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 10, 13-25, 29, 31-46, 51 and 53-57 is/are rejected.
- 7) ☒ Claim(s) 6-9, 11, 12, 26-28, 30, 47-50 and 52 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 5.
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_.

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**DETAILED ACTION*****Double Patenting***

Claims 1-5, 11, 16 and 22 of this application conflict with claims 1, 2, 4, 6, 7, 18, 19 and 20, respectively of Application No. 09/993869. 37 CFR 1.78(b) provides that when two or more applications filed by the same applicant contain conflicting claims, elimination of such claims from all but one application may be required in the absence of good and sufficient reason for their retention during pendency in more than one application. Applicant is required to either cancel the conflicting claims from all but one application or maintain a clear line of demarcation between the applications. See MPEP § 822.

Claims 1-5, 11, 16 and 22 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1, 2, 4, 6, 7, 18, 19 and 20, respectively of copending Application No. 09/993869. Although the conflicting claims are not identical, they are not patentably distinct from each other because it discloses the detection of servo wedges during or after a spin-up operation (which is an operation when the disk is attaining or after the disk attains an operating speed.).

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sacks et al. (US Patent No. 6, 181, 505) in view of Tuttle et al. (Patent No. 6, 108, 151).

Regarding Claims 1 and 38, Fisher et al. teach a servo circuit, comprising:

A servo channel operable to recover servo data from servo wedges that identify respective data sectors on a data-storage disk (Pat. No. 6, 181, 505; Col. 6, Lines 3-26);

And a processor coupled to and operable to control the servo channel (Pat. No. 6, 181, 505; Col. 6, Lines 3-26).

Sacks et al. fails to teach a processor is operable to detect one of the servo wedges during or after disk spin-up search operation without first detecting a spin-up wedge. However, this feature is well known in the art as disclosed by Tuttle et al., wherein it teaches the detection of the preamble of the servo wedges without first detecting a spin up wedge (Pat. No. 6, 108, 151; Col. 4, Lines 29-56). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Sacks et al.'s invention to detect one of the servo wedges during or after disk spin-up search operation without first detecting a spin-up wedge in order to synchronize the timing recovery in the servo channel.

Apparatus claim 22 is drawn to the apparatus corresponding to the method of using same as claimed in claim 1 and 38. Therefore apparatus claim 22 corresponds to

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method claims 1 and 38, and is rejected for the same reasons of obviousness as used above.

Regarding Claim 2 and 23, Sacks et al. and Tuttle et al. teach all the limitations of Claims 1 and 22, respectively. Tuttle et al. further teach wherein the processor is operable to cause the servo channel to recover servo data from the one servo wedge after the processor detects the one servo wedge and before the servo channel recovers servo data from any other servo wedge (Pat. No. 6, 108, 151; Col. 4, Lines 29-56). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Sacks et al.'s invention to detect one of the servo wedges during or after disk spin-up search operation without first detecting a spin-up wedge in order to synchronize the timing recovery in the servo channel.

Regarding Claim 3 and 24, Sacks et al. and Tuttle et al. teach all the limitations of Claims 1 and 22, respectively. Tuttle further teach the one servo wedge comprises a preamble and the processor is operable to detect the one servo wedge by detecting the preamble (Pat. No. 6, 108, 151; Fig. 2B and Col. 4, Lines 29-56). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Sacks et al.'s invention to detect one of the servo wedges during or after disk spin-up search operation without first detecting a spin-up wedge in order to synchronize the timing recovery in the servo channel.

Regarding Claim 4 and 25, Sacks et al. teach all the limitations of Claims 1 and 25, respectively. Tuttle further teach the one servo wedge comprises a preamble and a servo synchronization mark following the preamble; the processor is operable to detect

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the one servo wedge by detecting the preamble; and the servo channel is operable to recover the synchronization mark in response to the processor detecting the preamble (Pat. No. 6, 108, 151; Fig. 2B and Col. 4, Lines 29-56). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Sacks et al.'s invention to detect one of the servo wedges during or after disk spin-up search operation without first detecting a spin-up wedge in order to synchronize the timing recovery in the servo channel.

Regarding Claim 5, Sacks et al. and Tuttle et al. teach all the limitations of Claim 1. Tuttle et al. further teach the one servo wedge and a servo wedge following the one servo wedge each comprise a preamble and a servo synchronization mark following the preamble; the processor is operable to detect the one servo wedge by detecting the preamble of the one servo wedge; the servo channel is operable to recover the synchronization mark of the one servo wedge in response to the processor detecting the preamble of the one servo wedge; after detecting the one servo wedge, the processor is operable to detect the following servo wedge by detecting the preamble of the following servo wedge; and the servo channel is operable to recover the synchronization mark of the following servo wedge in response to the processor detecting the preamble of the following servo wedge (Pat. No. 6, 108, 151; Fig. 2B and Col. 4, Lines 29-56. It is obvious to a person of ordinary skill in the art to know that the servo channel during will read more than one servo wedge when the disk is in a spinning operation.). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Sacks et al.'s invention to detect one of

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the servo wedges during or after disk spin-up search operation without first detecting a spin-up wedge in order to synchronize the timing recovery in the servo channel.

Regarding Claims 10 and 29, Sacks et al. and Tuttle et al. teach all the limitations of Claims 1 and 22, respectively. Tuttle et al. further teach: one the one servo wedge comprises a preamble (Pat. No. 6, 108, 151; Fig. 2B); the servo channel is operable to generate a read signal that represents the servo wedge and to sample the read signal (Col. 4, Lines 57-60. It presents a channel that reads both servo and user data.); the processor is operable to detect the one servo wedge by detecting the preamble from the samples (Col. 4, Lines 47-56); the servo channel comprises an interpolator loop that acquires the timing of the samples with respect to the read signal while the processor is detecting the preamble and that begins tracking the timing of the samples a predetermined time after the processor detects the preamble (Col. 21, Lines 3-31). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Sacks et al.'s invention to detect one of the servo wedges during or after disk spin-up search operation without first detecting a spin-up wedge in order to synchronize the timing recovery in the servo channel.

Regarding Claims 13 and 31, Sacks et al. and Tuttle et al. teach all the limitations of Claim 1 and 22, respectively. Tuttle et al. further teach the one servo wedge comprises a preamble (Pat. No. 6, 108, 151; Fig. 2B); the servo channel is operable to generate a read signal that represents the servo wedge and to sample the read signal; and the processor is operable to detect the preamble if and only if a predetermined number of consecutive samples represent the preamble (Fig. 2, and Col. 4, Lines 47-

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56. It is obvious to a person of ordinary skill in the art that a preamble has a predetermined number of consecutive samples.). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Sacks et al.'s invention to detect one of the servo wedges during or after disk spin-up search operation without first detecting a spin-up wedge in order to synchronize the timing recovery in the servo channel.

Regarding Claims 14 and 54, Sacks et al. and Tuttle et al. teach all the limitations of Claims 1 and 38, respectively. Tuttle et al. further teach wherein the one servo wedge comprises a preamble (Pat. No. 6, 108, 151; Fig. 2B); wherein the servo channel is operable to generate a read signal that represents the servo wedge and to sample the read signal (Col. 4, Lines 57-60. It presents a channel that reads both servo and user data.); wherein the processor is operable to detect the one servo wedge by detecting the preamble from the samples (Pat. No. 6, 108, 151; Col. 4, Lines 47-56); wherein the servo channel comprises an interpolator loop that acquires the timing of the samples with respect to the read signal while the processor is detecting the preamble and that begins tracking the timing of the samples a predetermined time after the processor detects the preamble and an initial-timing circuit operable to calculate an initial timing difference between the samples and the read signal and to provide an initial timing adjustment to the interpolator loop while the interpolator loop is acquiring the timing of the samples (Pat. No. 6, 108, 151; Col. 21, Line 65 to Col. 22, Line 62). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Sacks et al.'s invention to detect one of the servo



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wedges during or after disk spin-up search operation without first detecting a spin-up wedge in order to synchronize the timing recovery in the servo channel.

Regarding Claims 15, 33 and 55, Sacks et al. and Tuttle et al. teach all the limitations of Claims 1, 22 and 38, respectively. Tuttle et al. further teach wherein the one servo wedge comprises a preamble (Pat. No. 6, 108, 151; Fig. 2B); wherein the servo channel is operable to generate a read signal that represents the servo wedge, to amplify the read signal with a gain, and to sample the read signal; wherein the processor is operable to detect the one servo wedge by detecting the preamble from the samples and an initial-gain circuit operable to calculate an initial amplitude of the read signal and to provide an initial gain adjustment to the servo channel (Col. 21, Lines 45-59). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Sacks et al.'s invention to detect one of the servo wedges during or after disk spin-up search operation without first detecting a spin-up wedge in order to synchronize the timing recovery in the servo channel.

Regarding Claim 16, 34 and 56, Sacks et al. and Tuttle et al. teach all the limitations of Claims 1, 22 and 38, respectively. Tuttle et al. further teach wherein the one servo wedge comprises a binary sequence having groups of no more and no fewer than a predetermined number of consecutive bits each having a first logic level, the groups separated from each other by respective bits having a second logic level (Col. 16, Lines 30-67). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Sacks et al.'s invention to detect one of the

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servo wedges during or after disk spin-up search operation without first detecting a spin-up wedge in order to synchronize the timing recovery in the servo channel.

Regarding Claims 17 and 35, Sacks et al. and Tuttle et al. teach all the limitations of Claims 1 and 22, respectively. Tuttle et al. further teach wherein the one servo wedge comprises a binary sequence having groups of no more and no fewer than two consecutive logic 1's, the groups separated from each other by respective logic 0's (Col. 16, Lines 30-67. Tuttle teaches a group in which there is a group of two 0's and a group of two 1's.). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Sacks et al.'s invention to detect one of the servo wedges during or after disk spin-up search operation without first detecting a spin-up wedge in order to synchronize the timing recovery in the servo channel.

Regarding Claim 18, Sacks et al. and Tuttle et al. teach all the limitations of Claim 1. Tuttle et al. further teach wherein the one servo wedge comprises a binary sequence having groups of no more and no fewer than two consecutive logic 1's, the groups separated from each other by respective logic 0's (Col. 16, Lines 30-67. Tuttle teaches a group in which there is a group of two 0's and a group of two 1's. Tuttle teaches that it uses two 0's to represent the binary value 0, and two 1's to represent the value -1, therefore, there can be at least two zeros of separation when representing -1 and 0 (For example 11000011= -1 0 0 -1).). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Sacks et al.'s invention to detect one of the servo wedges during or after disk

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spin-up search operation without first detecting a spin-up wedge in order to synchronize the timing recovery in the servo channel.

Regarding Claim 32, Sacks et al. and Tuttle et al. teach all the limitations of Claim 22. Tuttle et al. further teach wherein the servo data comprises a preamble; wherein the servo channel is operable to generate a read signal that represents the servo data and to sample the read signal (Pat. No. 6, 108, 151; Fig. 2B); wherein the processor is operable to detect the servo data by detecting the preamble from the samples (Col. 4, Lines 57-60. It presents a channel that reads both servo and user data.); wherein the servo channel comprises an interpolator loop that coarsely adjusts respective phase angles the samples with respect to the read signal while the processor is detecting the preamble and that finely adjusts the phase angles of the samples a predetermined time after the processor detects the preamble (Pat. No. 6, 108, 151; Col. 21, Line 15 to Col. 22, Line 4); and an initial-phase circuit operable to calculate an initial phase angle between a sample and the read signal and to provide an initial phase-angle adjustment to the interpolator loop while the interpolator loop is coarsely adjusting the phase angles of the samples (Pat. No. 6, 108, 151; Col. 21, Line 15 to Col. 22, Line 4). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, in order to modify Sacks et al.'s invention in order to minimize the phase of the servo bursts because it reduces the phase sensitivity in the of the servo samples.

Regarding Claim 39, Sacks et al. and Tuttle et al. teach all the limitations of Claim 38. Tuttle et al. further teach wherein the first rotational speed is zero, or

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approximately zero (Pat. No. 6, 108, 151; Col. 15, Lines 13-15). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Sacks et al.'s invention in order to its initial velocity be zero in order to detect the servo wedges after initializing the spin operation.

Regarding Claim 40, Sacks et al. and Tuttle et al. teach all the limitations of Claim 38. Tuttle et al. further teach wherein the second rotational speed is a steady-state speed or is approximately a steady-state speed (Pat. No. 6, 108, 151; Col. 15, Lines 13-15. It is obviously to a person of ordinary skill in the art to know that in a disk after performing a spin-up operation, it eventually detects synchronously at a stable speed). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Sacks et al.'s invention in order to its initial velocity be a steady state velocity in order to detect the servo wedges.

Regarding Claim 41, Sacks et al. and Tuttle et al. teach all the limitations of Claim 38. Tuttle et al. further teach wherein the circumferential position of the read head is unknown for the entire first time period (Pat. No. 6, 108, 151; Col. 15, Lines 15-30). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Sacks et al.'s invention in order to after a time period to detect the location in the disk in because it prevents head crash.

Regarding Claim 42, Sacks et al. and Tuttle et al. teach all the limitations of Claim 38. Tuttle et al. further teach wherein the circumferential position of the read head is unknown for the entire first time period and for a second time period that follows and that is contiguous with the first time period (Pat. No. 6, 108, 151; Col. 15,

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Lines 15-30. Tuttle et al. that fir a time period the location of the head with respect to the disk is unknown. It is obvious that the time it takes could take more than one predetermined time period if that first predetermined time period is small.). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Sacks et al.'s invention in order to after a time period to detect the location in the disk in because it prevents head crash.

Regarding Claim 43, Sacks et al. and Tuttle et al. teach all the limitations of Claim 38. Tuttle et al. further teach wherein detecting the servo data comprises detecting a preamble that composes the servo data (Pat. No. 6, 108, 151; Col. 15, Lines 15-30). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Sacks et al.'s invention in order to after a time period to detect the location in the disk in because it prevents head crash.

Regarding Claim 44, Sacks et al. and Tuttle et al. teach all the limitations of Claim 38. Tuttle et al. further teach wherein determining the circumferential position of the read head comprises: recovering a data-location identifier from the servo data and determining the circumferential position of the read head from the data-location identifier (Pat. No. 6, 108, 151; Col. 15, Line 15 to Col. 16, Line 7. Tuttle et al. teach that the servo address mark indicates the position of the disk and it aids it in locating the other servo wedges.). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Sacks et al.'s invention in order to after a time period to detect the location in the disk in because it prevents head crash.

Regarding Claims 45 and 46, Sacks et al. and Tuttle et al. teach all the limitations of Claim 38. Tuttle et al. further teach wherein detecting the servo data comprises accurately detecting a predetermined number of servo wedges before determining the circumferential position of the read head (Pat. No. 6, 108, 151; Col. 15, Line 15 to Col. 16, Line 7. Tuttle et al. teach that the servo address mark indicates the position of the disk and it aids it in locating other servo wedges.). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Sacks et al.'s invention in order to after a time period to detect the location in the disk in because it prevents head crash.

Regarding Claim 51, Sacks et al. and Tuttle et al. teach all the limitations of Claim 38. Tuttle et al. further teach sampling the servo data and synchronizing the samples to the servo data by interpolating values of synchronized samples of the servo data from actual values of respective unsynchronized samples of the servo data (Pat. No. 6, 108, 151; Col. 22, Lines 5-55. Tuttle et al. teach that the interpolate circuit takes the samples of digital servo data and minimizes its phase, therefore eliminating its error and synchronizing the servo data.). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Sacks et al. in order to sampling the servo data and synchronizing the data in order to minimize the phase errors.

Regarding Claim 53, Sacks et al. and Tuttle et al. teach all the limitations of Claim 38. Tuttle et al. teach wherein detecting the servo data comprises detecting the servo data if and only if a predetermined number of consecutive samples of the servo

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data represent a preamble (Pat. No. 6, 108, 151; Col. 15, Lines 15-30. Tuttle et al. teach detecting a servo address mark which is found in the preamble.). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Sacks et al.'s invention in order to after a time period to detect the location in the disk in because it prevents head crash.

Claims 19 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sacks et al. and Tuttle et al. as applied to claims 1 and 22, respectively above, and further in view of Patapoutian et al. (US Patent No. 5, 661, 760).

Regarding Claim 19 and 36, Sacks et al. and Tuttle et al. teach all the limitations of Claim 1 and 22, respectively. Sacks et al. and Tuttle et al. fail to teach wherein the servo wedge comprises a predetermined binary sequence having groups of no more and no fewer than a predetermined number of consecutive bits each having a first logic level, the groups separated from each other by respective bits having a second logic level; And the servo channel comprises a Viterbi detector that excludes state transitions that are excluded from the predetermined binary sequence. However, this feature is well known in the art as disclosed by Patapoutian et al., wherein it teaches a first group of consecutive bits, the first group having first and second equally sized portions and representing a first logic level, the bits in the first portion each having a second logic level (Pat. No. 5, 661, 760; Col. 3, Lines 55-58. Patapoutian et al. teaches a  $\frac{1}{4}$  coding scheme that codes binary ones into "--++" and binary zeros into "++--". It is inherent that if a sequence of for example "1011" ("10" being a first logic level and "11" being a second logic level) will be encoded into "--++++-----++--++", having a first and second

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equally sized portion in the first group ("--++" and "++--") having a second logic level ("1") and a third logic level ("0")) and a Viterbi detector operable to receive a signal that represents a binary sequence (Pat. No. 5, 661, 760; See Abstract). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Sacks et al. and Tuttle et al.'s invention in order to receive a binary sequence (Pat. No. 5, 661, 760; See Abstract).

Claim 20 and 37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sacks et al. and Tuttle et al. as applied to claims 1 and 22 above, and further in view of Patapoutian et al. (US Patent No. 5, 661, 760) and Cloke et al. (US Patent No. 5, 822, 143).

Sacks et al. and Tuttle et al. fail to teach wherein the servo wedge comprises a predetermined binary sequence having groups of no more and no fewer than a predetermined number of consecutive bits each having a first logic level, the groups separated from each other by respective bits having a second logic level; And the servo channel comprises a Viterbi detector that excludes state transitions that are excluded from the predetermined binary sequence. However, this feature is well known in the art as disclosed by Patapoutian et al., wherein it teaches a first group of consecutive bits, the first group having first and second equally sized portions and representing a first logic level, the bits in the first portion each having a second logic level (Pat. No. 5, 661, 760; Col. 3, Lines 55-58. Patapoutian et al. teaches a  $\frac{1}{4}$  coding scheme that codes binary ones into "--++" and binary zeros into "++--". It is inherent that if a sequence of for example "1011" ("10" being a first logic level and "11" being a second logic level) will



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be encoded into "--++++----++--++", having a first and second equally sized portion in the first group ("--++" and "++--") having a second logic level ("1") and a third logic level ("0")) and a Viterbi detector operable to receive a signal that represents a binary sequence (Pat. No. 5, 661, 760; See Abstract). Sacks et al., Tuttle et al. and Patapoutian et al. fail to teach calculating a respective path metric for each of no more than two possible states of the binary sequence and determining a surviving path from the calculated path metrics, the binary sequence lying along the surviving path. However, this feature is well known in the art as disclosed by Cloke et al., wherein it teaches a Viterbi detector that uses a trellis codes that search for a path metric (Pat. No. 5, 822, 143; See Fig. 1A and Col. 1, Lines 45-48, Lines 53-59 and Col. 1, Line 60 to Col. 2, Line 19). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Tuttle et al.'s invention to use a path metric in order to effectively estimate the most likely sequence of symbols.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sacks et al. and Tuttle et al. as applied to claim 1 above, and further in view of Ehrlich et al. (US Patent No. 6, 519, 107). Sacks et al. and Tuttle et al. teach all the limitations of Claim 1. Sacks et al. and Tuttle et al. fail to teach wherein the one servo wedge lacks an erase field. However, this feature is well known in the art as disclosed by Ehrlich, wherein it teaches servo wedge which lacks an erase field (Pat. No. 6, 519, 107; Col. 14, Lines 20-33). It would have been obvious to a person of ordinary skill in the art, at the time the invention was made, to modify Sacks et al. and Tuttle et al.'s invention in order to

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eliminate the erase field in order to provide positioning for the actuator head (Pat. No. 6, 519, 107; Col. 14, Lines 33-50).

***Allowable Subject Matter***

Claims 6, 7, 8, 9, 11, 12, 26, 27, 28, 30, 47, 48, 49, 50 and 52 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Glenda P. Rodriguez whose telephone number is (703)305-8411. The examiner can normally be reached on Monday thru Thursday: 7:00-5:00; alternate Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on (703)308-4825. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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March 5, 2004.



DAVID HUDSPETH  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2600